Space Weather Forecast

Issued on Sunday, 04 August 2024 at 01:12 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate flares expected, chance of Strong flares and of exceeding S1/Minor Radiation Storm threshold. Possible glancing Coronal Mass Ejection (CME) influence early Day 1 (04 Aug). Chance of G1/Minor Geomagnetic Storm.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity is High. A peak impulsive Moderate-class flare was observed at 03/1839UTC from a complex sunspot region in the northeast quadrant. Another Moderate-class flare was also observed at 03/1930UTC from a region still around the east limb, which is due to rotate onto the Earth-facing disc in the next day or so.

An active disc, with thirteen sunspot regions currently on the visible disc. Three regions remain clustered close together in the southwestern disc. Two of which are still in very close proximity, with magnetic complexity still visible. These regions are increasingly difficult to analyse as they approach the west limb. Two regions in the southeast have some magnetic complexity, with a third still difficult to analyse near the east limb. Two regions in the northeast have been declining slightly. All other regions appear generally stable at present. No other Earth directed Coronal Mass Ejections (CMEs) have been observed in the past 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind has declined down to background levels. Wind speeds were initially near 400 km/s, declining to around 360 km/s. The Interplanetary Magnetic Field was weak throughout, with the north-south component also varying weakly. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate to High activity forecast to continue, with occasional Moderate class flares expected and a chance of isolated Strong flares.

Solar Wind /Geomagnetic Activity: The shock from a CME originating from the southwest of the disc at 01/0709UTC is likely to give Earth some glancing influence later on Day 1 into Day 2 (03-04 Aug). Due to the large number of coincident CMEs in recent days, further arrivals cannot be ruled out through the period.

No coronal hole fast wind enhancements are expected during the period, with CME arrivals expected to be the main factor of interest. Geomagnetic activity is expected to be generally Quiet to Unsettled, with periods of Active to G1/Minor Storms and a slight chance of G2/Moderate Storms should any CME arrivals bring more than a glancing blow. In the absence of further CME influence, activity is likely to become mostly Quiet later in the period.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Met Office Space Weather Forecast

Energetic Particles / Solar Radiation: Solar radiation is currently at background levels, but with a chance of exceeding the S1/Minor Solar Radiation Storm level in response to larger flares from the western disc.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	5	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	90	80	70	70
Very Active	R3 to R5 X	No	25	20	20	20

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	25	25	25	20
Very Active	≥ S3 *	No	5	5	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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